



DIVISION OF
CORPORATION FINANCE

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

October 2, 2013

Via E-mail

Vicente Anido, Jr., PhD
Chief Executive Officer
Aerie Pharmaceuticals, Inc.
135 US Highway 206, Suite 15
Bedminster, New Jersey 07921

**Re: Aerie Pharmaceuticals, Inc.
Registration Statement on Form S-1
Filed September 17, 2013
File No. 333-191219**

Dear Dr. Anido:

We have reviewed your registration statement and have the following comments. In some of our comments, we may ask you to provide us with information so we may better understand your disclosure.

Please respond to this letter by amending your registration statement and providing the requested information. If you do not believe our comments apply to your facts and circumstances or do not believe an amendment is appropriate, please tell us why in your response.

After reviewing any amendment to your registration statement and the information you provide in response to these comments, we may have additional comments.

General

1. We are currently evaluating your disclosure in light of the letter you submitted on September 30, 2013 that includes the estimated price range of your proposed offering. We will issue comments relating to your estimated price range, if any, under separate cover.

Prospectus Summary

Our Product Pipeline, page 3

2. We note your response to prior comment 1. As you have done in your Business section, please include in your prospectus summary a discussion of your prior efforts to develop AR-12286 and PG286. This discussion should address the fact that, until recently, your product development efforts were focused on AR-12286 and PG286, that AR-12286 failed to meet its primary clinical endpoints in a recent Phase 2b trial, the specifics of this

failure and why these results were sufficient to persuade you to discontinue development of AR-12286 and PG286.

Management's Discussion and Analysis of Financial Condition and Results of Operations

Financial Overview

Critical Accounting Policies and Use of Estimates

Stock Compensation, page 62

3. We acknowledge your response to prior comment 4. We will continue to defer our evaluation of stock compensation until an IPO price has been set. At that time, please address the following:
 - Once you can reasonably estimate the IPO price, qualitatively and quantitatively discuss each significant factor contributing to the difference between each valuation and the estimated IPO price;
 - Disclose the intrinsic value of the outstanding vested and unvested options based on the estimated IPO price as of the most recent balance sheet date presented in the registration statement; and
 - Continue to update your disclosure for all equity related transactions, including any options, warrants, or convertible note or preferred stock issuances, through the effective date of the registration statement.

Business

Our Product Pipeline

AR-13324 Phase 2 Efficacy Results, page 79

4. We note your response to prior comment 5. Please explain for the benefit of the lay reader the meaning and significance of "p-values" and clarify the threshold p-value that corresponds to statistical significance.
5. In your discussion on page 80 of the Phase 2b study of AR-13324, please clarify the difference between "clinical significance" and "statistical significance."
6. Please revise to clarify the statement that once-daily AR-13324 0.02% "did not show non-inferiority" to latanoprost on day 28 of the Phase 2b trial and explain the concept of non-inferiority and how it is measured.
7. When you state that the efficacy of AR-13324 0.02% was "in line" with published historical data for twice-daily timolol relative to latanoprost, please specify how the data compare to each other.

Notes to the Financial Statements

Note 10. Stock Purchase Warrants, page F-19

8. Please refer to our comment 8 and your response. Please provide the significant factors for the difference in the fair market value of the Company's common stock utilized for determining the value of the liability for the warrants issued on August 9, 2013, May 23, 2013 and March 28, 2013 and the IPO price once a reasonable estimate of the IPO price range has been determined.

Note 11. Stock-based Compensation, page F-20

9. As you indicated in your response to comment 10, please provide the significant factors for the difference in the fair market value of the Company's common stock utilized to determine the compensation expense for the restricted stock as compared to the IPO price at the time that a reasonable estimate of the IPO price range has been determined. If a material difference exists, please provide additional disclosure in the Management's Discussion and Analysis section to explain the difference.

Note 15. Subsequent Events, page F-28

10. Please disclose the terms of the options issued in August and September 2013.

We urge all persons who are responsible for the accuracy and adequacy of the disclosure in the filing to be certain that the filing includes the information the Securities Act of 1933 and all applicable Securities Act rules require. Since the company and its management are in possession of all facts relating to a company's disclosure, they are responsible for the accuracy and adequacy of the disclosures they have made.

Notwithstanding our comments, in the event you request acceleration of the effective date of the pending registration statement please provide a written statement from the company acknowledging that:

- should the Commission or the staff, acting pursuant to delegated authority, declare the filing effective, it does not foreclose the Commission from taking any action with respect to the filing;
- the action of the Commission or the staff, acting pursuant to delegated authority, in declaring the filing effective, does not relieve the company from its full responsibility for the adequacy and accuracy of the disclosure in the filing; and
- the company may not assert staff comments and the declaration of effectiveness as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

Vicente Anido, Jr., Ph.D.
Aerie Pharmaceuticals, Inc.
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Please refer to Rules 460 and 461 regarding requests for acceleration. We will consider a written request for acceleration of the effective date of the registration statement as confirmation of the fact that those requesting acceleration are aware of their respective responsibilities under the Securities Act of 1933 and the Securities Exchange Act of 1934 as they relate to the proposed public offering of the securities specified in the above registration statement. Please allow adequate time for us to review any amendment prior to the requested effective date of the registration statement.

You may contact Christine Allen at (202) 551-3652 or Mary Mast at (202) 551-3613 if you have questions regarding comments on the financial statements and related matters. Please contact Scot Foley at (202) 551-3383, Daniel Greenspan at (202) 551-3623 or me at (202) 551-3715 with any other questions.

Sincerely,

/s/ Daniel Greenspan for

Jeffrey P. Riedler
Assistant Director

cc: Andrew B. Barkan, Esq.
Steven G. Scheinfeld, Esq.
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